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Stachybotryna longispiralis sp. nov. from the Brazilian Atlantic Forest

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Abstract — *Stachybotryna longispiralis*, collected on decaying leaves of an unidentified plant, is described and illustrated as a new species characterized by long spirally twisted hyaline setae and monophialidic discrete conidiogenous cells that produce subcylindrical unicellular hyaline conidia. A key to *Stachybotryna* species is provided.

Key words — conidial fungi, asexual fungi, systematics

Introduction

Stachybotryna was introduced by Tubaki & Yokoyama (1971) with *S. columaris* as type species and is characterized by distinct, single, erect, septate, penicillate branched toward the apex, hyaline conidiophores and monophialidic, discrete, determinate conidiogenous cells that produce seriate, cylindrical, fusiform, clavate to ellipsoidal, unicellular, subhyaline or hyaline conidia. *Stachybotryna* resembles *Stachybotrys* Corda in conidial ontogeny and arrangement of the conidiogenous cells in forming a penicillate cluster at the conidiophore tips, but the difference between them is the presence of setae and colorless conidia in *Stachybotryna* (Heredia et al. 2012, Seifert et al. 2011).

During a mycological survey of microfungi associated with leaf litter in a Brazilian Atlantic forest, a conspicuous fungus was collected, described here as a new *Stachybotryna* species.

Materials & methods

Individual collections were placed in plastic bags, taken to the laboratory, and treated according to Castañeda (2005). Mounts were prepared in polyvinyl alcohol-glycerol (8 g PVA in 100 ml of water, plus 5 ml of glycerol) and in lactic acid (90%), and measurements were made at a magnification of ×1000 under a Nikon Eclipse Ni-U microscope with bright field optics, and photomicrographs were obtained using DIC optics with a Nikon DS-Fi2 camera. The holotype was deposited in the Herbarium of Universidade Federal de Pernambuco, Recife, Brazil (URM).

Taxonomy

Stachybotryna longispiralis P.M.O. Costa, Malosso & R.F. Castañeda, **sp. nov.** Figs 1, 2

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Differs from all other *Stachybotryna* species by its long spirally twisted setae and its subcylindrical conidia that are corniform at the base.

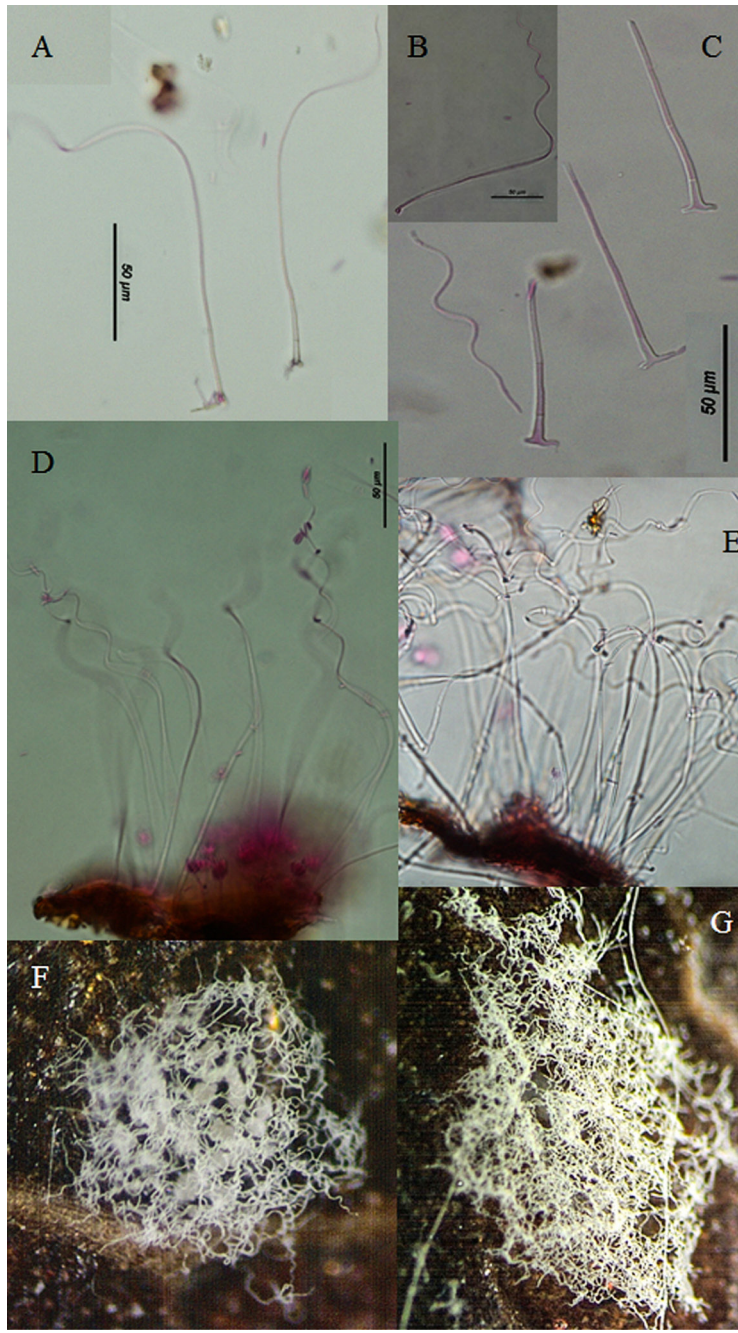
Type Brazil, Pernambuco, Bonito, RPPN Mata da Chuva, 8°30′S 35°42′W, on decaying leaves of an unidentified plant, 7.XI.2015, coll. P.M.O. Costa (**Holotype**, URM 88251).

Etymology: Latin, *longispiralis*, refers to the long spirally twisted setae.

Colonies on the natural substratum densely coiled hirsute, mucous at the middle, amphigenous, white. Mycelium superficial and immersed, composed of septate, branched, hyaline, smooth-walled hyphae, 3–4 µm diam. Setae cylindrical below, long spirally twisted toward the apex, septate, hyaline, smooth, 150–380 µm long, 5–7 µm wide near the base. Conidiophores distinct, grouped near the setae, erect, straight or flexuous, cylindrical, penicillate branched above, 1–3-septate, hyaline, smooth, 30–40 × 7–10 µm, smooth. Conidiogenous cells monophialidic, amygdaliform to inequilaterally lageniform, terminal, discrete, determinate, hyaline, 5–8 × 2–3 µm. Conidia seriate, acrogenous, subcylindrical to subfusiform, corniform at the base, obtuse or slightly rounded at the apex, unicellular, hyaline, smooth, 6–9 × 1–2 µm, forming white, mucous masses.

Notes: In addition to *Stachybotryna columaris* (Tubaki & Yokoyama 1971), four other species have previously been described: *S. splendida* (Castañeda-Ruiz 1987), *S. hachijoensis* (Watanabe 1990) *S. excentrica* (Calduch et al. 2002), and *S. variegata* (Heredia et al. 2012). Only *S. columaris* superficially resembles *S. longispiralis* in conidial shape, but it can be distinguished by its straight or slightly curved setae (each with a long apical cell swollen at the base and a lanceolate, acute apex) and its longer (14–18 × 1.5–2 µm), cylindrical or club-shaped conidia that are slightly flattened at the base (Tubaki & Yokoyama 1971).

Fig. 1. *Stachybotryna longispiralis* (ex holotype URM 88251). A–D. Setae. E, F. Colonies on the natural substrate.


A
60 µm
B
C
50 µm
D
50 µm
E
F
G

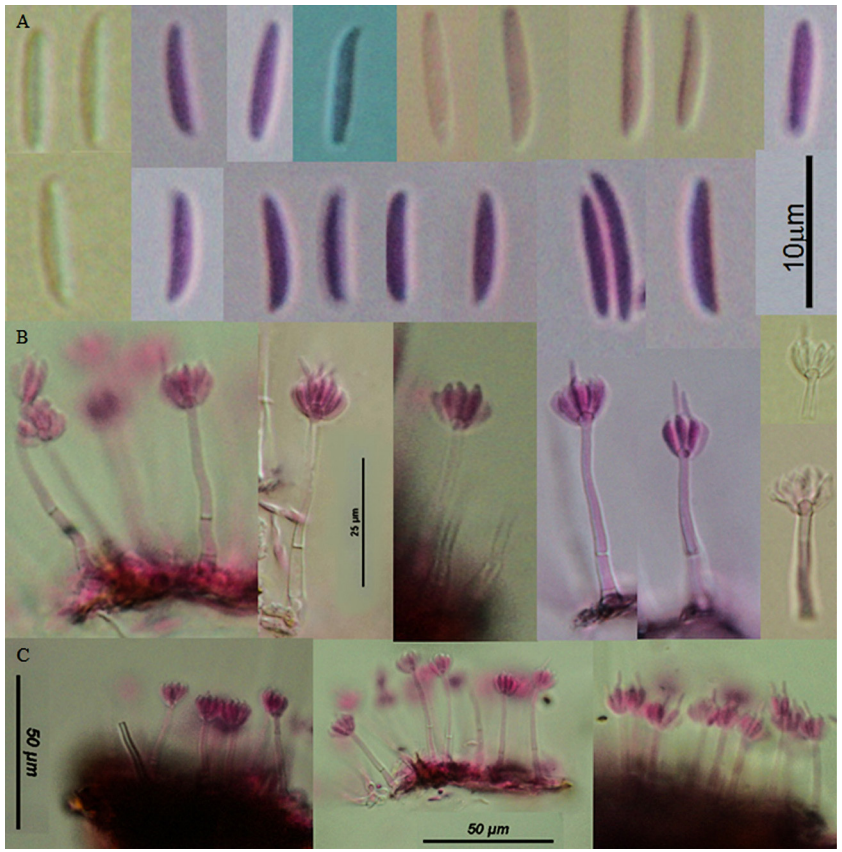


Fig. 2. *Stachybotryna longispiralis* (ex holotype URM 88251). A. Conidia. B, C. Conidiophores, conidiogenous cells, and conidia on the natural substrate.

Key to *Stachybotryna* species

1. Setae spirally twisted; conidia subcylindrical to subfusiform, corniform at the base, 6–9 × 1–2 µm ..... *S. longispiralis*
   Setae not as above..... 2
2. Setae sometimes or always lanceolate toward the apex..... 3
   Setae never lanceolate toward the apex..... 4
3. Setae with apical cell swollen at the base, lanceolate-acute at the apex; conidia cylindrical or club-shaped, flattened at the base, 14–18 × 1.5–2 µm.... *S. columaris*
   Setae lanceolate or clavate at the apex; conidia clavate, ovoid or pyriform, 12.5–27.5(–42) × 5–5.5 µm ..... *S. hachijoensis*

4. Setae entirely colorless, subcylindrical, obtuse at the apex; conidia ellipsoidal to amygdaliform or slightly allantoid, 3.5–5.5 × 1.5–2 µm ..... *S. excentrica*
   Setae somewhat pigmented below 5
5. Setae cylindrical, globose or inflated at the apex; conidia ellipsoidal to ovoid or broadly fusiform, guttulate, 8–10 × 3–4 µm ..... *S. splendida*
   Setae cylindrical, obtuse or rounded at the apex; conidia ellipsoidal to broadly fusiform, 14–18 × 5–6 µm ..... *S. variegata*

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